

AMENDMENTS TO THE SPECIFICATION

Please amend the title as follows:

DEVICE FOR CONTROLLING AN IMAGING LENS POSITION
FOCUS LENS POSITION CONTROLLING DEVICE AND METHOD THEREFORE

Please amend paragraph [0013] as follows:

[0013] In order to solve the first deficiency, according to the device for controlling an imaging lens position of the present invention, although one focus lens position is finally determined, before the final determination, information relating to a distribution of high-frequency components in a plurality of focus lens positions as candidates is stored. After that, by selecting information having a suitable distribution from a plurality of information relating to a distribution, which is stored, controlling a focus lens position for imaging is performed. Hence, in the present invention, the ~~is characterized in that a plurality of information relating to a the~~ distribution of high-frequency components, which are selectable, is stored with respect to each focus lens position of a peak focus.

Please amend paragraph [0057] as follows:

[0057] Note that, the reason why the high-frequency components are acquired ~~by~~ in the first embodiment is as follows. In the case of in-focus, since the details of a subject are sharply expressed, the contrast thereof becomes strong, and in order to approximate this, a wave pattern having a short wave length, therefore, high-frequency components is required. Meanwhile, in the case of out-of-focus, since an entire image becomes blurry, a wave pattern thereof has a long wave length, therefore, an image includes a low-frequency component. Hence, by filtering by a band-pass filter and extracting only the high-frequency components, and by acquiring the above-mentioned curve using this high-frequency component, a curve having a definite peak is acquired. Hence, by using high-frequency components of an image signal it becomes possible to acquire a curve for easy focusing.

Please amend paragraph [0060] as follows:

[0060] The 'acquirer for information relating to focus lens position of a peak focus' (0201) has a function of acquiring information relating to the focus lens position of a peak focus. The 'information relating to focus lens position of a peak focus' corresponds to information indicating the focus lens position in which the integration value of said high-frequency components in a predetermined area of said frame (of course, this predetermined area may be the same as the frame) assumes a peak.

Please amend paragraph [0061] as follows:

[0061] Fig. 3 is a diagram exemplifying a flow of acquiring information relating to a focus lens position of a peak focus. This Fig. 3 shows a method for Fourier-transforming and processing a luminance signal of a picture element as a frequency component. As shown in this Fig. 3, a luminance signal as an image signal is acquired from light of an image, which passed through a focus lens, by an image sensor such as a CCD. Next, the luminance signal is extracted from the image acquired by CCD in the extraction circuit for frequency (indicated as (1) in Fig. 3. hereinafter the same is applied[.]). Subsequently, the frequency component of the luminance signal is Fourier-transformed by the Fourier-transformation circuit (2). The Fourier-transformed luminance signal is filtered by the band-pass filter (3). The high-frequency components of the frequency component is extracted (4). The integration value of the range (shaded portion), which has been extracted by the computation circuit for integration value of a range, is acquired (5). The integration value correlated with a lens position is plotted (6).

Please amend paragraph [0068] as follows:

[0068] The 'determinator for an imaging lens position' (0204) has a function of determining an imaging lens position, a focus lens position for imaging, based on the information relating to a focus lens position of a peak focus correlated with the information relating to a distribution of high-frequency components and stored in the first storage, wherein the selection information acquired by the acquirer for selection information (0203) indicates that the information relating to a distribution of high-frequency components has been selected. Thus, the selection information is acquired based on the information relating to a distribution of high-frequency

components, and the imaging lens position is determined based on the selection information, so that it becomes possible to determine a focus lens position so that a portion, in which a desired subject exists, is focused. Note that, the 'imaging lens position' corresponds to a suitable focus lens position for imaging, and means the same as the 'device for controlling an imaging focus lens position' of the second device for controlling an imaging lens position.

Please amend paragraph [0093] as follows:

[0093] Fig. 12 is a functional block diagram of a device for controlling an imaging lens position of the third embodiment. As shown in Fig. 12, the device for controlling an imaging lens position of the ~~first~~third embodiment (1200) comprises, 'acquirer for information relating to a focus lens position of a peak focus' (1201), 'computer for high-frequency component index' (1202), 'second storage' (1203), 'acquirer for selection information' (~~0204~~)(1204), and 'determinator for an imaging lens position' (~~0205~~)(1205). Note that, the 'acquirer for information relating to a focus lens position of a peak focus' (1201), the 'acquirer for selection information' (~~0204~~)(1204), and the 'determinator for an imaging lens position' (~~0205~~)(1205) are already described in the first embodiment, so the descriptions thereof will be omitted.

Please amend paragraph [0099] as follows:

[0099] Figs. 15 and 16 are schematic diagrams of the device for controlling an imaging lens position of the fourth embodiment. The fourth embodiment relates to an autofocus technology for the focusing of a video camera etc. As shown in Fig. 15, a situation in which a person, a house, or a mountain is photographed is assumed. In Fig. 16, a curve indicating a relationship between the sum of the derivative values of a luminance value of an image and a focus lens position is expressed. In the large frame region, as shown in the image (b), three subjects, a person, a house, and a mountain, are focused on, so that a curve (a) expressing the sum of derivative values of luminance values has three peaks. Meanwhile, in the small frame region, as shown in the image ~~(a)~~(d), only one subject, a person, is focused, so that a curve ~~(b)~~(c) expressing the sum of derivative values of luminance values has only one peak. Note that, here, the derivative value of luminance value may be a differential of luminance value. Thus,

according to the fourth embodiment, a desired subject is captured and focused on in the small frame, and the large frame is used subsidiarily.

Please amend paragraph [0136] as follows:

[0136] Fig. 25 is a schematic diagram of an aspect ratio of a small frame region and a large frame region.

Please amend paragraph [0152] as follows:

[0152] The twelfth embodiment is a device for controlling an imaging lens position (2801) comprising, the 'acquirer for an image signal' (2802), the 'acquirer for contrast information' (2803), the 'acquirer for information relating to a focus lens position of a peak focus' (2804), and the 'determinator for an imaging focus lens position' (2805), and is characterized in that a middle frame region 2902 is comprised, and said acquirer, an extractor for high-frequency image signal, and a generator for integration value perform processing of an image signal of said middle frame region 2902 similarly to image signals of said small frame region 2903 and of said large frame region 2901; and said determinator for an imaging focus lens position 2805 determines an imaging lens position in the order of the small frame region ~~1103~~2903, the middle frame region ~~1102~~2902, and the large frame region ~~1101~~2901, according to priority.